

We claim:

1. A method for producing a tubular spring in the form of a hollow body, in particular for preloading a piezoelectric actuator element of an actuator unit of a fuel injector, comprising the step of providing a tube, in particular a thin-walled seamless drawn steel tube, with a plurality of regularly disposed oblong cutouts by means of beam/jet cutting.
2. The method according to Claim 1, wherein the beam/jet cutting is performed by a method selected from the group consisting of laser beam, waterjet or electron beam cutting.
3. The method according to Claim 1, wherein during beam/jet cutting a filler is inserted in the hollow body.
4. The method according to Claim 1, wherein a longitudinal extension direction of each cutout is in each case essentially oriented perpendicularly to a cylinder center line of the tubular spring.
5. The method according to Claim 1, wherein the cutouts are disposed in rows, the cutouts of adjacent rows each being laterally offset to one another.
6. The method according to Claim 1, wherein a minimum distance between adjacent cutouts of two rows is 0.3 to four times the wall thickness of the cylindrical hollow body of the tubular spring.
7. The method according to Claim 1, wherein the seamless drawn steel tube used for the tubular spring has a thickness of less than 1.0 millimeters.
8. The method according to Claim 1, wherein a spring steel is used as the material of the seamless drawn steel tube used for the tubular spring.

9. The method according to Claim 1, wherein the tubular spring is provided with cutouts which more specifically have dumbbell-shaped outlines with a narrowed-down central area.

10. An actuator unit comprising a piezoelectric actuator element disposed in a thin-walled cylindrical hollow body, wherein said hollow body being elastically implemented and preloading the actuator element, and the hollow body being a steel tube provided with a plurality of cutouts.

11. An actuator unit comprising a tubular spring in the form of a hollow body for preloading a piezoelectric actuator element of an actuator unit of a fuel injector, said tubular spring manufactured as a thin-walled seamless drawn steel tube, with a plurality of regularly disposed beam/jet cut oblong cutouts.
12. The actuator according to Claim 11, wherein a longitudinal extension direction of each cutout is in each case essentially oriented perpendicularly to a cylinder center line of the tubular spring.
13. The actuator according to Claim 11, wherein the cutouts are disposed in rows, the cutouts of adjacent rows each being laterally offset to one another.
14. The actuator according to Claim 11, wherein a minimum distance between adjacent cutouts of two rows is 0.3 to four times the wall thickness of the cylindrical hollow body of the tubular spring.
15. The actuator according to Claim 11, wherein the seamless drawn steel tube used for the tubular spring has a thickness of less than 1.0 millimeters.
16. The actuator according to Claim 11, wherein a spring steel is used as the material of the seamless drawn steel tube used for the tubular spring.
17. The actuator according to Claim 11, wherein the tubular spring is provided with cutouts which more specifically have dumbbell-shaped outlines with a narrowed-down central area.